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REMARKS

Applicant has carefully studied the outstanding Office Action. This paper is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Applicant asserts that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims are respectfully requested.

Status of Claims

Claims 11-22 are pending in this application.

Claims 11 and 16 were amended.

Claims 23-24 were canceled without prejudice or disclaimer to resubmission in a divisional or continuation application.

Applicant respectfully asserts that no new matter has been added.

Interview Summary

Applicants thank the Examiner for the courtesy of telephonic Interviews with Applicant's representatives on November 29, 2005, and on December 6, 2005, in which proposed amendments to claims 11 and 16 were discussed.

During the interviews, Applicant's representatives proposed to amend the claims by canceling claims 23 and 24 and amending claims 11 and 16 to recite that "said cutting edge is oriented to define a non-zero relief angle opposite said cutting direction between said cutting tool and said cutting path". The Examiner agreed that this amendment would clearly define a relief

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angle as shown in the drawings, and would thus overcome the rejection of claims 23 and 24 under 35 USC §112 and the objection to the drawings under 37 CFR 1.83(a). The Examiner noted that a further review of the cited references may be required before determining whether amended claims 11 and 16 would be allowable over the cited references.

OBJECTIONS TO THE DRAWINGS

The Examiner objected to the drawings under 37 CFR 1.83(a). Specifically, the Examiner requested that the "off-radial release angle" recited in claims 23 and 24 must be shown in the drawings.

Applicant respectfully submits that in view of the cancellation of claims 23 and 24, the objection to the drawings under 37 CFR 1.83(a) is now moot.

Applicant also submits that, as agreed with the Examiner in the interviews of November 29, 2005 and December 6, 2005, Drawing 1B shows the non-zero relief angle, denoted "C", as recited by amended claims 11 and 16.

CLAIM REJECTIONS

35 U.S.C. § 112 Rejections

The Examiner rejected claims 23 and 24 under 35 U.S.C. §112, first paragraph. Specifically, the Examiner contended that the term "off-radial release angle" was not defined in the specification.

The Examiner also rejected claims 23 and 24 under 35 U.S.C. §112, second paragraph. Specifically, the Examiner contended that the term "off-radial release angle" lacks antecedent basis, since it was not defined previously.

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Applicant respectfully submits that in view of the cancellation of claims 23 and 24 and the amendment of claim 11 and 16, the rejection of claims 23 and 24 under 35 U.S.C. §112 is now moot.

Specifically, Applicant submits that, as agreed with the Examiner in the interviews of November 29, 2005 and December 6, 2005, the language "wherein said cutting edge is oriented to define a non-zero relief angle opposite said cutting direction between said cutting tool and said cutting path", as recited by amended claims 11 and 16, is fully supported by the application as originally filed, for example, in Fig. 1B and on page 7 of the specification, at lines 9-10.

35 U.S.C. § 102 Rejections

Claims 11-24 have been rejected under 35 USC §102(b) as being anticipated by Maier (US Patent No. 5,160,232). Specifically, the Examiner contended that Maier discloses a rotary multi-tooth milling cutter in Figs. 1 and 9. The Examiner also contended that Maier discloses a lateral cutting edge (6 or 7, Fig. 1 or at the end of cutting edge 5, Fig. 9), which rotates about a central cutter axis and cuts generally parallel thereto. The Examiner further contended that Maier discloses in Col. 6, lines 58-60 a lateral cutting edge including a pointed cutting edge oriented to cut along a circular path centered at the central cutting axis.

As is well established, in order to successfully assert a prima facie case of anticipation, the Examiner must provide a single prior art document that teaches every element and limitation of the claim or claims being rejected.

Each one of amended independent claims 11 and 16 recites "wherein said cutting edge is oriented to define a non-zero relief angle opposite said cutting direction between said cutting tool and said cutting path". It is respectfully asserted that Maier does not teach or fairly suggest at least this feature of the claimed invention.

Applicant respectfully submits that Maier describes a drill bit in Figs. 1-25 (Column 4 line 53 – Column 5, line 20). It is respectfully asserted that the drill bit of Maier, and in fact the structure of a drill bit in general, inherently does not include a lateral cutting edge which rotates about a central cutter axis and cuts generally parallel thereto, wherein the lateral cutting edge includes a pointed cutting edge oriented to cut in a cutting direction along a circular cutting path centered at the central cutting axis, and wherein the cutting edge is oriented to define a non-zero relief angle opposite the cutting direction between the cutting tool and the cutting path, as discussed in detail below.

A drill bit is clearly defined in the art as a cutting tool used for producing a circular hole by removing solid material. The cutting edges of the drill are defined at the front-end of the drill bit, and are clearly distinguished from the drill bit “flute”, which is a groove along the sides of the drill bit to assist in expelling chips away from the cutting area and/or allowing flow of a coolant through the cutting area. During operation, a drill bit is advanced in a direction parallel to the rotation axis of the drill, such that the cutting edge at the front end of the drill bit cuts generally perpendicular to the rotation axis. A drill bit, in contrast to a milling cutter, is not intended to cut in a direction lateral to the tool’s rotational axis. Since drill bits are not designed for cutting laterally, the lateral surface topography of any drill bit, and particularly the drill bit shown and described by Maier, inherently does not include a cutting edge with a non-zero relief angle relative to a circular cutting path.

It is clearly evident from Figs. 1 and 9 of Maier, that when the drill bit of Maier is rotated, the circular outer surfaces of elements 6 and 7 are completely aligned on a circle defined by the edges of elements 6 and 7. Accordingly, even if the description of Maier is interpreted broadly to suggest that elements 6 and 7 read on the language “lateral cutting edges”, an interpretation that Applicant believes to be improper, it is still evident from Figs. 1 and 9 of

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Maier that the drill bit of Maier does not include a cutting edge oriented to define a non-zero relief angle opposite the cutting direction between the cutting tool and the cutting path, as required by amended claims 11 and 16.

Maier therefore fails to teach all elements of claims 11 and 16, at least because this reference does not teach "said cutting edge is oriented to define a non-zero relief angle opposite said cutting direction between said cutting tool and said cutting path". Thus, it is respectfully requested that the rejection of amended claims 1 and 16 under 35 U.S.C. 102§(b) be withdrawn.

Furthermore, it is respectfully submitted that amended independent claims 1 and 16 are patentable, and thus allowable, over the prior art references on record and any combination thereof. In this regard, it is noted that the distinguishing features of amended independent claims 1 and 16, as discussed above, would not have been obvious at the time the invention was made to a person skilled in the art, in view of Maier, alone or in combination with any other cited references.

Claims 12-15 and 21 depend directly from independent claim 11 and incorporate all the elements of this claim. Claims 17-20 and 22 depend directly from independent claim 16 and incorporate all the elements of this claim. Therefore, it is respectfully submitted that claims 12-15 and 17-22 are patentable, and thus allowable, at least for the reasons set forth above.

CONCLUSION

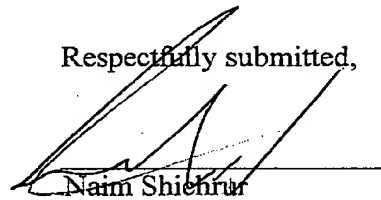
The present communication is intended to be fully responsive to all points of rejection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application is respectfully requested. It is submitted that the application is now in condition for allowance. Prompt notice of allowance is respectfully requested.

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Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below. Similarly, if there are any further issues yet to be resolved to advance the prosecution of this application to issue, the Examiner is requested to telephone the undersigned counsel.

Please charge any fees associated with this paper to deposit account No. 50-3355.

Respectfully submitted,



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Dated: December 12, 2005

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